Title:	Lifting Operations & Lifting Equipment

Introduction

Using lifting equipment to lift and move loads can be a high-risk activity. If the lifting equipment or the lifting accessory used fails, the outcome could be catastrophic. Failure or overturning of lifting equipment will not only endanger those carrying out the lifting operations, but the falling load may impact on other people, structures and equipment in the vicinity.

Why do we need these arrangements?

These arrangements are in place to help ensure that those employees involved in lifting operations or responsible for lifting equipment are fully aware of their responsibilities. These arrangements also help to ensure that such employees are fully aware of what they must do to ensure that they and the organisation comply with the requirements of the Lifting Operations and Lifting Equipment Regulations 1998.

What is lifting equipment?

Lifting equipment is defined as any work equipment whose principal purpose is to lift or lower loads, including attachments used for anchoring, fixing or supporting it.

Accessory for lifting – means equipment for attaching loads to machinery for lifting, for example slings, shackles, eyebolts, hooks, chains, forks on a forklift, people cages for fork lifts and tele handlers. (A general guide would be anything 'below the hook' for supporting and moving the load).

Why is the approach to lifting equipment different from work equipment?

Because of the potential high risks, should something go wrong, in addition to the general safety requirements relating to providing safe work equipment, there are additional legal requirements that apply to workplace lifting operations and to lifting equipment provided for use in the workplace.

These requirements are set out in the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) and include:

- Selecting and providing appropriate lifting equipment and accessories for the task.
- Installing lifting equipment safely
- Maintaining lifting equipment and accessories in a safe operational condition
- Ensuring all lifting equipment is marked with its **Safe Working Load** (SWL) and lifting capability and limitations and that these are never exceeded.
- Ensuring lifting equipment for lifting persons is designed for the purpose and clearly marked as such with appropriate information on the maximum number that may be carried.
- Ensuring lifting equipment and accessories exposed to conditions causing deterioration, undergoes regular thorough examination by a competent person.
- Ensuring employees or contractors using lifting equipment and/or carrying out lifting operations are trained and competent to do so safely.
- Planning, managing and supervising lifting operations so that they are carried out safely.
- Storing lifting equipment appropriately, so that its operational safety is not affected.

Is all lifting equipment and lifting operations subject to these additional requirements?

Some lifting equipment is not (although it must still comply with the Provision and Use of Work Equipment Regulations and any relevant British Standards). The requirements only apply to work activities and not to leisure activities or equipment used in a domestic setting. In most cases they will not apply to lower risk work equipment which does not have as its principal function a use for lifting or lowering of loads. They do not apply to lower risk equipment such as pallet trucks which lift loads for a very short distance as a secondary function to moving the actual load and where the consequences of failure would be low. The mechanism for example, that raises a tractor attachment in order to clear the ground is not categorised as lifting for the purposes of these requirements. Examples of equipment not included:

- equipment whose primary function is not lifting (e.g. a conveyor belt; a therapists chair or riser recliner chair used for height adjustment)
- roller shutter doors
- pallet trucks
- fall arrest ropes (these are covered by the Personal Protective Equipment requirements)
- equipment provided for use primarily by members of the public (e.g. a lift in a shopping centre)
- equipment which is not provided for use at work - however if you allow employees to provide their own lifting equipment, then this will be covered by these requirements.

What sort of lifting equipment is covered by these additional safety requirements?

There is a wide range of lifting equipment including:

- Commercial equipment for lifting materials such as cranes, vehicle mounted cranes, material hoists, ropes and pulleys, forklifts and tele handlers, scissor lifts, dumb waiters, vehicle lifts, jacks and axle stands in garages and tail lifts on vehicles.
- Lifting equipment for lifting people such as mobile elevated work platforms (MEWPS), workplace passenger and goods lifts.
- Ropes used for climbing and positioning during arboriculture or rope work for building examination or maintenance.
- Health and social care equipment designed for lifting individuals such as fixed and mobile lifting hoists, bath and bed hoists and lifts, stands and raising aids, stair lifts in care premises.
- Lifting accessories including slings, chains, ropes, shackles, removable eyebolts, crane and forklift forks.

The use of lifting equipment which has not been specifically designed for moving and handling people, should only be used in exceptional circumstances (e.g. for rescue purposes). However, there is some equipment specifically designed for dual use with the addition of appropriate accessories (such as lifting cages for fork lift trucks and tele handlers).

What do I have to do when procuring new lifting equipment?

At the procurement stage, assess any risks as well as considering what maintenance will be required and what PPE might be needed. Make sure the equipment is robust, stable and appropriate for the task, the location and the environment in which it will be used. If it is to be used indoors check you have sufficient room to use and manoeuvre it safely. If it is to be used outdoors, determine what the limitations are on the conditions in which it should be used. New equipment should be CE marked, supplied with a Declaration of Conformity and instructions in English. Controls should be clearly marked, easy to use and should be designed and placed to avoid accidental operation and injury.

Consider what sort of lifting activities you require the equipment to do and where, what sort of loads it will be lifting and who will be using it. For vehicles incorporating lifting equipment such as HIABS, vehicle mounted hoists and cranes and forklift trucks the Central Vehicle Maintenance Unit can assist with standards and specifications.
Assess what safety features are provided. If it is designed to lift people, for example an elevated work platform, are there safety measures to prevent users being crushed, trapped or struck or falling from the carrier? Will you need to incorporate addition controls such as use of safety harnesses and fall arrest equipment. Are controls and emergency controls clearly identified and easy to use? What compatible accessories will you need?

What do I have to do if I hire in lifting equipment?
The hire company has a duty to supply physical evidence that the equipment is compliant and safe to use, for example a copy of the most recent thorough examination report. They will also have to supply relevant safety information (user manual/instructions etc.) You need to check this is in order before using it. Once the equipment is delivered it will be your responsibility, as the user, to manage subsequent lifting operations in a safe manner, and ensure appropriate examinations and inspections are carried out to the required schedule. (This may be through prior agreement with the hire company).

What about contractors using lifting equipment?
If you are bringing in a specialist contractor to carry out lifting operations on your behalf (i.e. he/she plans the lift, provides the crane or equipment and the operators) then it is the contractor's responsibility to ensure the equipment is properly maintained, thoroughly examined and safe to use and the lifting operations are carried out safely.

How do I ensure that lifting equipment is used safely?
Lifting equipment should be positioned or installed in such a way as to reduce the risk, as far as reasonably practicable, of the equipment or load striking a person or of the load drifting, falling freely or being unintentionally released.

Employees involved in lifting operations need to be appropriately trained, competent and aware of the risks involved and of any safe working procedures.
Lifting operations should be appropriately supervised. However, the amount and quality of supervision will be proportionate to the risks and take account of the people involved. For example, an experienced Forklift truck or HIAB crane operator doing a routine job would require minimal supervision. Supervision doesn't necessarily mean the direct physical presence of a supervisor at all times.
Monitoring of lifting operations should be in place to ensure your arrangements and procedures for safe lifting safe working procedures are being implemented and that equipment is being used correctly. Monitoring is a management responsibility, for further clarification see Monitoring, Inspection and Auditing Arrangement, available in your Health and Safety Manual or electronically on the Hub.

How do I organise my lifting operations to ensure that they are undertaken safely?
Risk assessment is the key to identifying the most appropriate equipment and method for the job. The range of lifting operations includes:

- very simple and commonplace lifts, where minimal on-the-job planning by trained, competent people may be all that is needed to manage risk. Simple and repeated lifting and moving of materials or people in known and controlled environments; using a forklift in a depot to move palletised loads.
- intermediate lifting operations where although the lift itself may not be complex, the lifting environment creates problems. For example activities carried out on the promenade or in town and subject to hazards from nearby structures and activities, pedestrians, vehicle traffic and the weather.

- complex operations, for example which require more sophisticated and detailed planning and documented records, with very high levels of expert input, monitoring and supervision - undertaken by specially trained personnel. For example lifting of very unusual/problematic loads, tandem lifts involving more than one piece of equipment.

It is essential to ensure that lifting operations are planned properly prior to carrying them out.
The complexity of the plan and the extent of the resources used to manage risk will reflect the complexity and difficulty of the lifting operation.
The person appointed to plan the lift (the 'competent person' or 'appointed person') needs to have adequate training, practical and technical knowledge and experience. This will be proportionate to the risks, the type of lifting operations involved and the equipment used. There will be very different requirements for say operating a HIAB/ or vehicle mounted crane to move materials, using an elevated work platform to lift people or driving a fork lift truck. There may be specific formal training standards and requirements that apply to different lifting equipment and activities.

Planning of individual routine lifting operations may be delegated to the employees carrying them out provided they have had appropriate training and experience (e.g. a fork lift operator, slinger or crane operator). However, the line manager and/or appointed person will still hold overall responsibility for planning and managing lifting operations within his control and ensuring they are carried out safely.

What is involved in planning lifting operations?
For straightforward common lifting operations a single initial generic plan which could be part of the normal risk assessment may be appropriate, or with a Safe Working Procedure (SWP) attached. For example routine lifts carried out by an appropriately trained driver using a fork lift truck to move palletised loads in a depot; using a Mobil Elevated Work Platform (MEWP) to lift maintenance staff up inside a building.
For more complex lifting operations and intermediate lifts in hazardous environments, this is likely to require a formal and documented individual Lifting Plan. The lifting plan should take in to account the people, the roles and competencies involved; the equipment and accessories being used, the load (whether lifting people or materials), the sequence/methods being used and any special precautions and the environment where the lift takes place together with any site specific hazards identified (including dynamic factors). Where lifting operations require a lifting team, it is important that roles, responsibilities and means of communication within the team are clear and understood. Depending on the technical requirements and potential risks, there may be several documented elements to the plan – for example service lifting policy and procedures which could include risk assessment, SWP, Method Statement and/or checklist, individual Lift Plan template/document for completion.

Lifting plans will need to be reviewed if there are any significant changes and used to provide feedback and record any factors or problems resulting in temporary stoppage of the lifting operations.

What factors should you consider when planning the lift?
- What personnel are required to carry out the lift safely? e.g. lift equipment operator, slinger, signaller or banks man; trained care assistant etc.
- Who is in control of the lift where team work is required, i.e. the individual Lift Supervisor?
- What equipment and lifting accessories are required?
- What are you lifting, and what problems does it present?
- How heavy is it, and is this within the safe limits for the lifting equipment?
- Where is its centre of gravity?
- How will you attach it to the lifting machinery?

- Could you rehearse the lift if necessary?
- Are there other hazards in proximity such as overhead power lines, buildings or structures?
- Are there environmental conditions and dynamic factors that will affect the lift if lifting outside - weather, wind speed, ground surfaces, vehicle and pedestrian traffic, tramway operations, surrounding fixtures and features, overhead obstructions, electricity cables etc.
- Are there specific measures required to ensure the equipment remains stable and to prevent overturning?

Lifting operations must take place in a safe, secured working area:

- Take the necessary precautions to ensure the safety of others who may be affected by their work – you should never lift over people or traffic.
- Set up appropriate signs and barriers and position people at key points if they are needed
- to keep other people out of the lifting zone.
- Follow 'Chapter 8 Guidance' when working on or near the highway; 'Safety on The Line' when working adjacent to the Tramway.

What about emergency and contingency plans and rescue procedures?

It is essential that in the event of breakdown or malfunction of the equipment that appropriate emergency procedures are in place. It is critical that anyone being lifted isn't exposed to danger and that a reliable and appropriate means of rescue is in place. All employees using lifting equipment need to be familiarised and trained in the use of emergency controls and any emergency rescue plan.

For lifting operations involving the use of cranes and vehicle mounted cranes there is a specific British Standard setting out best practice requirements BS 7121.
The Health and Safety Team can advise on relevant standards for lifting activities.

What must employees do to lift safely?

Do:

- Follow training and safe working procedures.
- Ensure pre-use checks and inspections of equipment have been carried out and recorded if required.
- Use certified lifting equipment, marked with its safe working load, which is not overdue for examination.
- Position lifting equipment correctly and safely.
- Use correct/compatible lifting accessories for the lift.
- Make sure the load is correctly attached.
- Before lifting an unbalanced load, find out its centre of gravity. Raise the load a few inches off the ground and pause to establish the correct centre of gravity.
- Use packing to prevent sharp edges of the load from damaging slings and do not allow tackle to be damaged by being dropped, dragged from under loads or subjected to sudden loads.
- Make sure any indicators for safe working loads are operating properly and set correctly for the job and the way the equipment is configured.
- Use outriggers where necessary.
- When using multi-slings make sure the sling angle is taken into account.
- Have a responsible slinger or banks man and use a recognised signalling system.

Do not:

- Use unsuitable equipment, e.g. makeshift, damaged, badly worn slings or chains shortened with knots, kinked or twisted wire ropes, frayed or rotted fibre ropes.
- Exceed the safe working load of machinery or accessories.

- Allow lifting equipment to go outside of the safe working area or operate over people/traffic.
- Lift a load if you doubt its weight or the adequacy of the equipment.
- Carry out lifting operations if wind speeds or weather conditions are liable to make it unsafe.

What do I have to do to maintain lifting equipment in a safe operational condition?
In addition to the routine servicing and maintenance arrangements specified by the supplier or manufacturer, you need to ensure lifting equipment undergoes **thorough examination** at appropriate intervals and to have suitable **inspection and maintenance** arrangements in place. The extent of the scheme will depend on the type of equipment.

Some equipment may be required to be thoroughly examined before it is used for the first time after installation i.e. if it is installed/assembled at a specific site (for example tower cranes and construction hoists). If moved and reassembled it will need to be examined again before use. It will not be required for new equipment accompanied by an EC declaration of conformity made not more than 12 months before lifting equipment is put into service.

Lifting equipment will require to undergo regular in service examinations if exposed to conditions liable to cause deterioration which is likely to result in dangerous situations. (For example used in harsh environments or undergoing heavy usage liable to cause deterioration). It may also require thorough examination if something exceptional happens to it that might seriously affect safe operation or impact on its safety, for example overloading, equipment failure, or impact damage. If equipment has been out of use for a long time it should also be examined before being brought back in to use.
Thorough examination must be carried out **by a 'competent person'** either at statutory intervals depending on use or in accordance with a **written scheme of examination** drawn up by a 'competent person' which will specify appropriate periods.

Unless otherwise specified in the written scheme of examination, thorough examination **must** be carried out at minimum intervals of-

- 6 months for equipment and lifting accessories used to lift people
- 12 months for equipment used to lift materials

(For some types of equipment subject to light use in non-hazardous environments the written scheme may specify less frequent examination periods).

A **competent person** is someone with the relevant technical knowledge and practical experience of lifting equipment to enable them to detect defects or weaknesses and to assess their importance in relation to the safety and continued use of the specific equipment being examined. For much of the high risk and commercial lifting equipment and plant used for Council activities a specialist engineer engaged through the Council's insurers will be called in. However a competent person may be an in-house employee provided they have the necessary expertise and independence.

Thorough examination and inspection of lower-risk devices and accessories such as shackles and slings used in highways and engineering operations can be carried out by designated employees providing they have sufficient understanding, training and ability to identify any wear, deterioration or damage to the equipment.

The competent person will make a written report of the thorough examination. If they identify any defect which, in their opinion could become a danger to people they must notify the employer and send a copy of the report to the enforcement authority, HSE.

Anyone using lifting equipment should be able to ascertain that it has been thoroughly examined and is likely to be safe to use. You will need to ensure the information is accessible (for example a copy certificate in a lifting vehicle cab; access to paper copies or a electronic version).

How can I arrange a thorough examination of lifting equipment?
For Council departments, thorough examinations for both vehicle mounted lifting equipment (HIABs, fork lifts, elevated work platforms, scissor lifts, vehicle tail gates etc.) and other none vehicle related lifting equipment such as lifting equipment, hoists and passenger lifts etc. will be arranged through the Council's Risk & Emergency Planning Officer.

When should lifting equipment and accessories be inspected?
This will depend on the type of lifting equipment, how it is used and frequency of use and the recommendations of the manufacturer/supplier and the competent person carrying out thorough examinations and on the outcome of your risk assessment. It will involve:

- Planned inspections
- Pre-use checks - visual inspection and functional checks.
- Routine servicing
- Additional inspection following any incident that may adversely affect or damage lifting equipment.

They may be daily, weekly, quarterly or at other specified intervals depending on the type of equipment and frequency of use. They may be carried out by employees/operators where appropriate training and information has been provided and/or by third parties (maintenance contractors, specialist engineers, CVMU) depending on the technical level of competency required, the type of equipment and usage.

It is important to remember that thorough examinations and inspections are an additional requirement to general work equipment maintenance and inspection requirements. Whilst it may indicate poor maintenance, it won't replace it. Thorough examination focuses on the lifting gear and safety critical components - it won't incorporate other non-lifting parts of the equipment (for example the trailer or vehicle part of a vehicle mounted crane or elevated work platform).

Routine maintenance and inspection involves checking and replacing worn or damaged parts, lubrication, topping up fluid levels and making routine adjustments.

Do I need to keep records?
Yes, these would include the following

- A Register or inventory of lifting equipment.
- Retention of safety information supplied by manufacturer/supplier.
- Details of when lifting equipment including accessories such as slings, shackles ropes etc. is brought into operation and relevant issue, expiry and life-span information.
- Records of Thorough Examination.
- Records of inspection and maintenance e.g. pre-use checks.

Records need to be readily available to users and others who need to see them (for example the enforcing authority) and kept secure and in a form that is capable or being produced in written form (e.g. printed off). Minimum retention requirements are:

- EC declaration of conformity records, installation reports and thorough examination before first use records - retained for as long as the lifting equipment is operated.

- Lifting accessories - kept for two years
- In-service thorough examination - until the next report is made or two years, whichever is the later.
- Inspection reports - until the next inspection record is made.

However it is advisable to keep a succession of records to provide evidence that inspections are done and to enable any adverse 'trends' or problems to be spotted and monitored. You can always scan inspection records

It is important to have in place record systems that ensure that lifting accessories such as shackles, slings, hoists and chains are managed and tracked throughout their use and life span. Individual items should have their own unique identification number or marking and SWL information – however this should not be attached in such a way that might damage or adversely affect its performance. (For example by using felt tip pen to write on woven webbing slings or piercing or damaging the material if tagging).

What happens if serious defects are found in the lifting equipment?
The thorough examination report will list and prioritise any defects noted together with a time schedule for completion. It is important that you take appropriate action to get these rectified within the appropriate timescales. If a defect giving rise to an existing or imminent risk of serious personal injury is identified the competent person must notify you and forward a copy of the thorough examination report to the enforcing authority. In these circumstances it is essential that lifting equipment is taken out of use until the defect is rectified. The enforcing authority may contact you to confirm this.

For such as slings, ropes and harnesses etc. it is important to ensure that defective lifting accessories are taken out of use immediately and kept securely until destroyed/decommissioned. Woven slings etc. can be cut up and destroyed immediately. You should ensure this is recorded in your equipment register records.

N.B. Personal Protective Equipment required for lifting activities such as safety harnesses for work at height may have additional specific safety requirements.

Line Managers – What you need to do

- Ensure the correct lifting equipment is procured for the task.
- Ensure that the correct lifting accessories are procured for the task.
- Ensure that relevant staff are adequately trained to use the equipment.
- Ensure that staff are adequately trained in lifting operations.
- Ensure that relevant staff are adequately trained to supervise lifts.
- Ensure that staff involved in lifting operations are aware of the risks involved and the controls that are in place.
- Ensure that any hired lifting equipment is legally compliant and safe to use.
- Ensure that lifting operations are properly planned.
- Ensure that risk assessments, safe working systems and lifting plans (as relevant) are documented and in place prior to commencing lifting operations.
- Ensure that emergency plans, where needed are in place and have been tested.
- Ensure that systems are in place to ensure that 'thorough examinations' are carried out, where applicable.
- Ensure that systems are in place to make sure that pre-use visual checks of lifting equipment is carried out prior to its use.
- Ensure that systems are in place to inspect and maintain lifting equipment and accessories, as required.
- Ensure that relevant records are kept e.g. –
    - A Register or inventory of lifting equipment.
    - Retention of safety information supplied by manufacturer/supplier.
    - Details of when lifting equipment including accessories such as slings, shackles ropes etc. is brought into operation and relevant issue, expiry and life-span information.
    - Records of Thorough Examination.
    - Records of inspection and maintenance e.g. pre-use checks.
- Ensure that damaged or defective lifting equipment is destroyed or is taken out of use until the defect is remedied